were girdled between the tenth and eleventh leaves from the top of the stem. The bark tissue removed in making the girdle served as the control. Bark tissue immediately above and below the girdle was harvested at 5, 10, 20, and 30 days after girdling. The tissues were analyzed for total protein, sugar, starch, amino acids, auxin and rooting cofactors.

Sugars, increased in the tissues of both the red and white variety above the girdle during the first 10 days then decreased. This reduced sugar content was probably the result of a rapid conversion of sugar to starch since the red tissue above the girdle showed dramatic increases in starch at 20 and 30 days after girdling. Wilson's White tissue above the girdle showed only a small increase in starch content at 30 days after girdling. Thus the red tissue had more stored food available to serve as an energy source and to supply a carbon skeleton for producing more elaborate compounds necessary for the rooting process.

The concentrations of 12 amino acids were followed. Relatively high concentrations of most of the amino acids were found in the Wilson's White tissue above the girdle 5 days after girdling. These high concentrations indicated that the life processes of Wilson's White were drastically upset by girdling. Both red tissues and the white tissue below the girdle generally showed only minor changes in amino acid content at different harvest periods which indicated there was only a minor upset to the life processes of the red variety by girdling.

Auxin decreased in both tissues above the girdle with time. Thus an increase in auxin above the girdle can not be used to explain the increased rooting of girdled stems. In the tissues below the girdle auxin decreased as would be expected since it moves down stems in the phloem.

Three of the four rooting cofactors i.e. 1, 2 and 4 were found in hibiscus tissues, but only cofactor 4 showed marked changes. In the red tissue above the

girdle cofactor 4 closely paralleled the rooting ability of girdled red stems. The results indicate that the amount of cofactor 4 is proportional to the ability to produce roots.

It is suggested that the life-processes (metabolic system) of Wilson's White stems are more easily upset than are those of the red variety and this in part accounts for the difficulty encountered in rooting it. When Wilson's White is girdled or cut from the mother plant in the making of cuttings the life processes are so effected that one of two things may happen: 1) either the cutting is unable to recover and dies or 2) it recovers very slowly and rooting is weak and much delayed. The red variety recovers rapidly and forms roots shortly afterwards. The increased rooting response of girdled red stems is believed to be the result of a more stable metabolic system, an increased accumulation of carbohydrates and especially to an increase in cofactor 4 in the tissue.

-0-

PARTICULARLY DIFFICULT TO ROOT

Mr. Stoltz has asked for information as to the location of a variety which is particularly difficult to propagate by cuttings. If any of our readers has had experience along this line and can give us the names of the varieties that they are unable to root by cuttings please do so. If possible let us know where to obtain from 15 to 25 tip cuttings of the varieties. Please drop a note to the Executive Secretary and he will work out the shipment dates with Mr. Stoltz.

We have already supplied several varieties of wood for Mr. Stoltz to work with. As his proposed work progresses he will keep us informed. His complete PhD thesis probably will be published in American Society for Horticultural Science next year. We would appreciate a copy when this is done, Mr. Stoltz.

Thank you for the synopsis.

-0-